Grade 3
Mathematics
Item Specifications

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Introduction

In 2014 Missouri legislators passed House Bill 1490, mandating the development of the Missouri Learning Expectations. In April of 2016, these Missouri Learning Expectations were adopted by the State Board of Education. Groups of Missouri educators from across the state collaborated to create the documents necessary to support the implementation of these expectations.

One of the documents developed is the item specification document, which includes all Missouri grade level/course expectations arranged by domains/strands. It defines what could be measured on a variety of assessments. The document serves as the foundation of the assessment development process.

Although teachers may use this document to provide clarity to the expectations, these specifications are intended for summative, benchmark, and large-scale assessment purposes.

Components of the item specifications include:

Expectation Unwrapped breaks down a list of clearly delineated content and skills the students are expected to know and be able to do upon mastery of the Expectation.

Depth of Knowledge (DOK) Ceiling indicates the highest level of cognitive complexity that would typically be assessed on a large scale assessment. The DOK ceiling is not intended to limit the complexity one might reach in classroom instruction.

Item Format indicates the types of items used in large scale assessment. For each expectation, the item format specifies the type best suited for that particular expectation.

Text Types suggests a broad list of text types for both literary and informational expectations. This list is not intended to be all inclusive: other text types may be used in the classroom setting. The expectations were written in grade level bands; for this reason, the progression of the expectations relies upon increasing levels of quantitative and qualitative text complexities.

Content Limits/Assessment Boundaries are parameters that item writers should consider when developing a large scale assessment. For example, some expectations should not be assessed on a large scale assessment but are better suited for local assessment.

Sample stems are examples that address the specific elements of each expectation and address varying DOK levels. The sample stems provided in this document are in no way intended to limit the depth and breadth of possible item stems. The expectation should be assessed in a variety of ways.

Grade 3 Mathematics

Frequently asked questions for Item Specification and Sample Stems

1. What is the purpose of the Item Specification document?
Historically, Item Specification documents are written for test item writers. In Missouri, this document was seen as a resource for not only item writers, but teachers as well. The unwrapped section should provide more detail on the meaning of the standard and the sample stems should provide example items that also help clarify the standard. In this update, the language used in the Expanded Expectations document was included to merge the two documents for easier access. In some standards a "Notes" section was added to provide additional information.

2. Why do some unwrapped sections have the same few sentences at the beginning?
For standards that have multiple parts and are listed as sub expectations, e.g., NF.C.5.b, the first part highlights the intent of that standard series. Often, these standards should be taught together as they develop a bigger idea or concept.

3. Why is the Fluency definition only on some standards?
Certainly, students having experience using different strategies and picking the strategy they feel best for given situations is important to improving student knowledge in mathematics. The Missouri Educators working on the document felt it important to highlight areas where student access to multiple strategies would provide the greatest support. Listing fluency in all standards would likely lessen the impact needed.

4. What does the "e.g." mean when listed in the unwrapped section?
The "e.g." is a way to highlight a list of examples, ideas, or concepts. It is **not** an exhaustive list, nor is it intended to represent the best examples. It is merely a partial list to provide some examples.

5. What does "with or without context" mean?
This phrase was used to highlight that the math problems might have some situational context or could possibly be a strictly number or symbol situation. The Educators working on this update wanted the focus to be on using math to solve problem situations rather than a focus on "real world" problems.

6. Are the Sample Stems examples of summative test items?
The Sample Stems could be a classroom item or possibly an assessment item. In some cases, the problem used would have to be adjusted to use on a Statewide assessment. The goal was to give students and teachers a problem that aligns to the standard. The Stems provided in the document are an example. The educators assisting with the update in some cases created more than one example and those are listed at the bottom of the document. All examples are good, some fit better on the page within the Item Specification which have determined those shown in both places.

7. Why are there no answers listed with the Sample Stems?
The focus of the Sample Stems should be on the work students can demonstrate to indicate their level of understanding for the given standard. While the answer is one component, when given, it frequently becomes the focus which does not provide important information in the learning process.

8. What does "No Limits" mean in the Limits and Boundaries section?
Where there are no limits or boundaries to be listed, "No Limits" was used to indicate this situation and help those using the document understand that it wasn't an oversight. IMPORTANT NOTE: if the standard itself or the cluster heading lists a specific limit, e.g., specific denominators, size or type of number, that was not duplicated in the Limits section.

9. Why do some words show a short definition?
While this does not serve as a replacement for a glossary, there were terms within the unwrapping that the committee felt should have meaning included. This occurs in the standard where it specifically addresses the concept in the standard, e.g., cardinality, trapezoid.

10. Why are Kindergarten and Grade 1 Sample Stems a bit different?
Students in Kindergarten and Grade 1 are beginning readers, so teachers should expect to read problems to the students rather than only providing problems to be solved.

Grade 3 Mathematics

Mathematics		3.NBT.A.1
NBT **A** **1**	**Number Sense and Operations in Base Ten** **Use place value understanding and properties of operations to perform multi-digit arithmetic** Round whole numbers to the nearest 10 or 100.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will round whole numbers to the nearest ten or hundred in situations where estimation would be useful. Rounding is used to adjust the number based on the context of the situation, e.g., round to the nearest hundred. Estimation is used to approximate answers without actually computing. Rounding and estimation are used together to approximate solutions or estimate values.

Sample Stems

A two-digit number is rounded to 50. What could it be?

A three-digit number is rounded to 300. What could it be?

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limit given numbers to four digits.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 2

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.NBT.A.2
NBT **A** **2**	**Number Sense and Operations in Base Ten** **Use place value understanding and properties of operations to perform multi-digit arithmetic** Read, write and identify whole numbers within one hundred thousand using base ten numerals, number names and expanded form.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will read, write, and identify whole numbers within 100,000 using base ten numerals, number names and expanded form.

The student will be able to convert between number names (word form), base ten numerals (standard form) and expanded form.

Note:
Expanded form is not the same as **expanded notation**, e.g., **expanded form** is expressed 537 = 500 + 30 + 7; **expanded notation** is expressed 537 = (5x100) + (3x10) + (7x1). According to the standard, **expanded notation** is not appropriate for Missouri grade level assessment.

Based on the wording in the standards **base ten numerals** will replace **standard form**; **number names** will replace **word form**; and **expanded form** will be used.

Sample Stems

Represent the number four thousand, two hundred sixty-one in three ways.

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

No Limits.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 2

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.NBT.A.3
NBT **A** **3**	**Number Sense and Operations in Base Ten** **Use place value understanding and properties of operations to perform multi-digit arithmetic** Demonstrate fluency with addition and subtraction within 1000.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will fluently add and subtract with numbers and results within 1000 using strategies based on place value, properties of operations (associative, commutative, and distributive properties) and/or the relationship between addition and subtraction.

The student will critique the reasoning of others, identifying errors and alternate approaches to solving problems involving addition and subtraction.

The student will communicate his or her reasoning precisely to problems involving addition and subtraction.

Note:
While students will be learning how to use properties of operations, i.e., associative, commutative, distributive, identity, the focus is not on identifying or naming the properties.

Mathematical Fluency is more than a quick answer on a timed test. Students demonstrate Fluency when they do mathematics using an ***appropriate strategy*** in a reasonable amount of time, ***knowing multiple processes*** and can apply or adapt strategies to find a correct solution.

The student will use and explain multiple strategies to solve problems with or without context involving demonstrating fluency with addition and subtraction.

Sample Stems

Choose 3 numbers from this list that will give you a sum closest to 1,000. What is the sum? Why did you pick those numbers?

Number list includes: 234, 617, 954, 89, 326, 742 and 173.

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

No Limits.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 3

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.NBT.A.4
NBT **A** **4**	**Number Sense and Operations in Base Ten** **Use place value understanding and properties of operations to perform multi-digit arithmetic** Multiply whole numbers by multiples of 10 in the range 10-90.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will multiply one-digit whole numbers with multiples of 10 in the range 10-90, e.g., 9 x 80, 50 x 6, using strategies based on properties of operations (associative, commutative, and distributive properties).

The student will multiply one-digit whole numbers with multiples of 10 using strategies based on place value, e.g., since 9 groups of 8 is 72, 9 groups of 8 tens is 72 tens, or 720.

Note:
The language of groups of ten is important for students to express and understand. This is a deeper understanding than "placing a zero at the end of the number" or using 0 as a place holder.

While students will be learning how to use properties of operations, i.e., associative, commutative, distributive, identity, the focus is not on identifying or naming the properties.

Sample Stems

2 x 90 is an expression that has a product of 180. Find other expressions that also have a product of 180, list as many as you can.

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

No Limits.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 2

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.NF.A.1
NF **A** **1**	**Number Sense and Operations in Fractions** **Develop understanding of fractions as numbers** Understand a unit fraction as the quantity formed by one part when a whole is partitioned into equal parts.	**PRIORITY STANDARD**

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will understand a *unit fraction* as the quantity formed by one part when a whole is partitioned into equal parts, e.g., $\frac{1}{4}$ represents 1 of the 4 equal parts or $\frac{1}{4}$ of the whole. In this example, $\frac{1}{4}$ is known as the *unit fraction*.

Sample Stems

Write a fraction that is a unit fraction. What characteristics make this a unit fraction?

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limit denominators to 2, 3, 4, 6 or 8.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 3

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.NF.A.2.a
NF	**Number Sense and Operations in Fractions**	**PRIORITY STANDARD**
A	**Develop understanding of fractions as numbers**	
2	Understand that when a whole is partitioned equally, a fraction can be used to represent a portion of the whole.	
a	Describe the numerator as representing the number of pieces being considered.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The expectations in 3.NF.A.2 (a and b) indicate that 3rd grade students will understand that when a whole is partitioned equally, a fraction can be used to represent a portion of the whole.

The student will understand that the *numerator* of the fraction indicates how many pieces of the whole have been represented, e.g., $\frac{3}{4}$ represents 3 pieces that are each $\frac{1}{4}$ of the whole.

Note:
Numerator comes from *number,* which means "*the count*", so the number or count of pieces of the whole.

A third-grade student is expected to know the meaning of the term numerator in addition to identifying the numerator.

Sample Stems

Label each equal part of the model with a unit fraction. What fraction of the model is shaded? How do you know?

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limit to fractions with denominators 2, 3, 4, 6 or 8.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 2

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.NF.A.2.b
NF	**Number Sense and Operations in Fractions**	**PRIORITY STANDARD**
A	**Develop understanding of fractions as numbers**	
2	Understand that when a whole is partitioned equally, a fraction can be used to represent a portion of the whole.	
b	Describe the denominator as the number of pieces that make the whole.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The expectations in 3.NF.A.2 (a and b) indicate that 3rd grade students will understand that when a whole is partitioned equally, a fraction can be used to represent a portion of the whole.

The student will understand that the *denominator* of the fraction represents the number of equal pieces into which the whole has been partitioned, e.g., in $\frac{3}{4}$ the 4 represents the number of equal pieces into which the whole has been partitioned.

Note:
Denominator means "*the name*", so the number of equal pieces that make the whole.

A third-grade student is expected to know the meaning of the term denominator in addition to identifying the denominator.

Sample Stems

Franscico is wanting to draw a picture to show $\frac{2}{3}$. He starts by drawing a rectangle. What should he do next?

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limit to fractions with denominators 2, 3, 4, 6 or 8.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 2

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.NF.A.3.a
NF	**Number Sense and Operations in Fractions**	
A	**Develop understanding of fractions as numbers**	
3	Represent fractions on a number line.	
a	Understand the whole is the interval from 0 to 1.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The expectations in 3.NF.A.3 (a through c) indicate that 3rd grade students will understand that a fraction is a number on the number line and be able to represent fractions on a number line diagram.

The student will understand the whole is the interval from 0 to 1.

Sample Stems

Olive creates a number line that is partitioned into sixths.

Place a dot to show where one whole would be.

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limit to fractions with denominators 2, 3, 4, 6 or 8.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 2

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.NF.A.3.b
NF	**Number Sense and Operations in Fractions**	
A	**Develop understanding of fractions as numbers**	
3	Represent fractions on a number line.	
b	Understand the whole is partitioned into equal parts.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

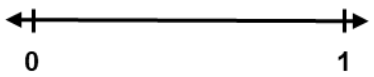
The expectations in 3.NF.A.3 (a through c) indicate that 3rd grade students will understand that a fraction is a number on the number line and be able to represent fractions on a number line diagram.

The student will understand the whole is partitioned into equal parts, e.g., work with paper folding or fraction bar models to connect to the understanding of number lines.

The student will apply the understanding of unit fractions when partitioning linear fraction models and number lines.

Sample Stems

Using the following number line, partition the number line into four equal parts.



Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limit to fractions with denominators 2, 3, 4, 6 or 8.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 2

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.NF.A.3.c
NF	**Number Sense and Operations in Fractions**	
A	**Develop understanding of fractions as numbers**	
3	Represent fractions on a number line.	
c	Understand a fraction represents the endpoint of the length a given number of partitions from 0.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The expectations in 3.NF.A.3 (a through c) indicate that 3rd grade students will understand that a fraction is a number on the number line and be able to represent fractions on a number line diagram.

The student will understand a fraction represents the endpoint of the length of a given number of partitions from 0, e.g., the number $\frac{3}{4}$ is located at the end of the length that is 3 partitions from 0 when each partition is a fourth.

The student will label, identify, or model the fractional point as a fraction greater than one on a given number line beyond one whole unit, e.g., a point on a number line can be named $\frac{5}{3}$.

Sample Stems

Show where the fraction $\frac{3}{4}$ is on a number line, be sure to include where 0 and 1 would be on that number line.

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limit to fractions with denominators 2, 3, 4, 6 or 8.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 2

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.NF.A.4
NF **A** **4**	**Number Sense and Operations in Fractions** **Develop understanding of fractions as numbers** Demonstrate that two fractions are equivalent if they are the same size, or the same point on a number line.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will demonstrate that two fractions are equivalent (equal parts of the same size whole) when using fraction bars, fraction circles, or other models.

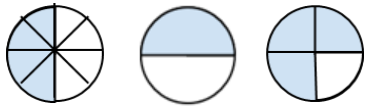
The student will use number lines to demonstrate that two fractions are equivalent if they are the same distance from zero.

Mathematical Fluency is more than a quick answer on a timed test. Students demonstrate Fluency when they do mathematics using an ***appropriate strategy*** in a reasonable amount of time, ***knowing multiple processes*** and can apply or adapt strategies to find a correct solution.

The student will use and explain multiple strategies to solve problems with or without context, involving demonstrating when two fractions are equivalent.

Sample Stems

Use the models below. Which fractions are equivalent? How do you know?



Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limit to fractions with denominators 2, 3, 4, 6 or 8.
Limit fractions to be from zero to one, inclusive of zero and one.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 2

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.NF.A.5
NF A 5	**Number Sense and Operations in Fractions** **Develop understanding of fractions as numbers** Recognize and generate equivalent fractions using visual models, and justify why the fractions are equivalent.	**PRIORITY STANDARD**

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will use visual models to recognize and generate equivalent fractions, e.g., $\frac{1}{2} = \frac{2}{4}$, $\frac{4}{6} = \frac{2}{3}$.

The student will justify, e.g., using number lines, manipulatives, or models to show why the fractions of the same whole are equivalent. Include fractions that are equal to 1, e.g., $\frac{3}{3} = 1$.

Note:
The student should understand that to be equivalent, the number or model must represent the same fraction for the same size whole.

Mathematical Fluency is more than a quick answer on a timed test. Students demonstrate Fluency when they do mathematics using an ***appropriate strategy*** in a reasonable amount of time, ***knowing multiple processes*** and can apply or adapt strategies to find a correct solution.

The student will use and explain multiple strategies to solve problems with or without context that involves recognizing and/or generating equivalent fractions.

Sample Stems

Draw two models then partition and shade the models to show that $\frac{1}{2} = \frac{2}{4}$.

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limit to fractions with denominators 2, 3, 4, 6 or 8.
Limit fractions to be from zero to one, inclusive of zero and one.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 3

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.NF.A.6
NF A 6	**Number Sense and Operations in Fractions** **Develop understanding of fractions as numbers** Compare two fractions with the same numerator or denominator using the symbols >, = or <, and justify the solution.	**PRIORITY STANDARD**

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will compare two fractions with the same numerator or same denominator using the same-sized whole by reasoning about their quantity (value and size) using number lines, models, manipulatives, or words, e.g., $\frac{6}{10}$ is less than $\frac{6}{8}$ because they both have 6 pieces, but tenths are smaller than eighths when using the same-sized whole.

The student will justify their comparison, e.g., using number lines, manipulatives, models, then communicate the results of the comparison using the symbols <, > or =.

Mathematical Fluency is more than a quick answer on a timed test. Students demonstrate Fluency when they do mathematics using an ***appropriate strategy*** in a reasonable amount of time, ***knowing multiple processes*** and can apply or adapt strategies to find a correct solution.

The student will use and explain multiple strategies to solve problems with or without context involving comparing two fractions with the same numerator or the same denominator.

Sample Stems

Elliott has a pan of brownies. To get the most brownie, should he eat $\frac{4}{6}$ or $\frac{4}{8}$ of the pan? Justify your answer using words or drawings.

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limit to fractions with denominators 2, 3, 4, 6 or 8.
Limit fractions to be from zero to one, inclusive of zero and one.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 3

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.NF.A.7
NF A 7	**Number Sense and Operations in Fractions** **Develop understanding of fractions as numbers** Explain why fraction comparisons are only valid when the two fractions refer to the same whole.	**PRIORITY STANDARD**

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will explain that fraction comparisons are only valid when the two fractions refer to the same-sized whole. Explanations could include words, numbers, manipulatives, or models.

Mathematical Fluency is more than a quick answer on a timed test. Students demonstrate Fluency when they do mathematics using an ***appropriate strategy*** in a reasonable amount of time, ***knowing multiple processes*** and can apply or adapt strategies to find a correct solution.

The student will use and explain multiple strategies to solve problems with or without context involving fraction comparisons.

Sample Stems

Chip and Heather each ate half of a pizza, but Chip ate more. How is that possible?

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limit to fractions with denominators 2, 3, 4, 6 or 8.
Limit fractions to be from zero to one, inclusive of zero and one.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 3

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.RA.A.1
RA A 1	**Relationships and Algebraic Thinking** **Represent and solve problems involving multiplication and division.** Interpret products of whole numbers.	**PRIORITY STANDARD**

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will interpret products of whole numbers using multiple strategies, e.g., repeated addition, arrays, equal groups, rectangular area.

Note:
The focus of 3.RA.A.1, Interpret products of whole numbers, is having the student make sense of what the product represents. So, with a grouping of 3 rows and 5 columns a student could describe the product as being 3 groups of 5 items or 5 groups of 3 items. The importance is how the student communicates the product. This would include saying "I have 3, 5 times" or "I have 5, 3 times". This is building to students focused on the value in 3.RA.B.6, 3.RA.C.7 and 3.RA.C.8.

Mathematical Fluency is more than a quick answer on a timed test. Students demonstrate Fluency when they do mathematics using an ***appropriate strategy*** in a reasonable amount of time, ***knowing multiple processes*** and can apply or adapt strategies to find a correct solution.

The student will use and explain multiple strategies to solve problems with or without context involving interpreting products of whole numbers.

Sample Stems

Draw a picture of 3 x 4 = 12. How did you represent the 3? How did you represent the 4? Where is the 12 in your picture? Explain in words why 3 x 4 = 12 is true.

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limited to products within 100.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 2

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.RA.A.2
RA A 2	**Relationships and Algebraic Thinking** **Represent and solve problems involving multiplication and division.** Interpret quotients of whole numbers.	**PRIORITY STANDARD**

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will interpret quotients of whole numbers in situations resulting from both sharing (the number of groups is known) and measurement (the number in each group is known) processes, e.g., 56 ÷ 8 can be interpreted as 56 objects being divided into groups with 8 objects each (measurement), or 56 objects being divided into 8 equal groups (sharing).

Note:
The student can use fluency strategies including repeated subtraction, pictures, making equal groups, dealing fair shares, missing factors, or other mathematical ideas.

Situations represented by a picture could include either an array or equal groups.

Mathematical Fluency is more than a quick answer on a timed test. Students demonstrate Fluency when they do mathematics using an ***appropriate strategy*** in a reasonable amount of time, ***knowing multiple processes*** and can apply or adapt strategies to find a correct solution.

The student will use and explain multiple strategies to solve problems with or without context involving interpreting quotients of whole numbers.

Sample Stems

Draw a picture of 18 divided by 3 equals 6. How did you represent the 18? How did you represent the 3? Where is the 6 in your picture? Explain in words why 18 divided by 3 equals 6 is true.

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limit divisors to no greater than ten and dividends to no greater than one hundred.
Limit quotients to be whole numbers with no remainder.
Limit divisors to ten or less and dividends to one hundred or less.

DOK Ceiling: 2

Item Format: Selected Response, Constructed Response, Technology Enhanced

Calculator Designation

NO – a calculator will not be available for items

Grade 3 Mathematics

Mathematics		3.RA.A.3
RA A 3	**Relationships and Algebraic Thinking** **Represent and solve problems involving multiplication and division.** Describe in words or drawings a problem that illustrates a multiplication or division situation.	**PRIORITY STANDARD**

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will describe in words or drawings a problem that illustrates a multiplication or division situation, e.g., "Janet had 3 boxes that each held 5 books" can be represented by "3 x 5" (3 groups of 5 books) or "5 x 3" (5 books in 3 groups), "2 x 4" could be contextualized as "James had 2 boxes with 4 toys in each", "Brad has 30 cookies. He creates piles of 5 cookies" can be represented by "30 ÷ 5".

Mathematical Fluency is more than a quick answer on a timed test. Students demonstrate Fluency when they do mathematics using an ***appropriate strategy*** in a reasonable amount of time, ***knowing multiple processes*** and can apply or adapt strategies to find a correct solution.

The student will use and explain multiple strategies to solve problems with or without context involving description of situations involving multiplication or division using words or drawings.

Sample Stems

Jake buys 2 packs of pencils. Each pack has 5 pencils. Draw a picture to show how many pencils Jake has.

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limited to products within 100.
Limit divisors to no greater than ten and dividends to no greater than one hundred.
Limit quotients to be whole numbers with no remainder.
Limit divisors to ten or less and dividends to one hundred or less.

DOK Ceiling: 2

Item Format: Selected Response, Constructed Response, Technology Enhanced

Calculator Designation

NO – a calculator will not be available for items

Grade 3 Mathematics

Mathematics		3.RA.A.4
RA **A** **4**	**Relationships and Algebraic Thinking** **Represent and solve problems involving multiplication and division.** Use multiplication and division within 100 to solve problems.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	**Sample Stems**
The student will use multiplication and division within 100 to model and solve word problems in situations involving equal groups, arrays, or rectangular areas, e.g., by using drawings and/or equations with a symbol for the unknown number to represent the problem.	Conrad needed 42 stamps so he could send Thank you notes to his relatives. If there are 6 stamps in a package, how many packages will he need? Additional Stems for 3rd Grade Found at End of Document.
State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits Limited to products within 100.	**Calculator Designation** **NO** – a calculator will not be available for items
DOK Ceiling: 3	
Item Format: Selected Response, Constructed Response, Technology Enhanced	

Grade 3 Mathematics

Mathematics		3.RA.A.5
RA **A** **5**	**Relationships and Algebraic Thinking** **Represent and solve problems involving multiplication and division.** Determine the unknown number in a multiplication or division equation relating three whole numbers.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will determine the unknown number in any position in a multiplication or division equation relating three whole numbers, e.g., 8 x ? = 48, a ÷ 3 = 5, 6 x 6 = b.

Sample Stems

Fill in the blanks to make the equation true:

12 x ____ = 96

$$\frac{72}{\square} = 8$$

Describe different ways you might work to solve these problems.

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limited to products within 100.
Limit divisors to no greater than ten and dividends to no greater than one hundred.
Limit quotients to be whole numbers with no remainder.
Limit divisors to ten or less and dividends to one hundred or less.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 2

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.RA.B.6
RA	**Relationships and Algebraic Thinking**	
B	**Understand properties of multiplication and the relationship between multiplication and division.**	
6	Apply properties of operations as strategies to multiply and divide.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will apply appropriate properties of operations as strategies to multiply and divide, e.g., If 6 x 4 = 24, then 4 x 6 = 24 (**Commutative property**), 3 x 5 x 2 can be found by 3 x 5 = 15 and 15 x 2 = 30 or by 5 x 2 = 10 and 10 x 3 = 30 (**Associative property**), 7 x 8 can be organized mentally as 5 groups of 8 and 2 more groups of 8, so 5 groups of 8 = 40 and 2 groups of 8 = 16 meaning 7 groups of 8 = 40 + 16 = 56 (**Distributive property**), 8 x 6 can be thought of as 2 sets of 4 groups of 6, meaning 8 x 6 = 4 x 6 + 4 x 6. (**Distributive property**).

Note:
While students will be learning how to use properties of operations, i.e., associative, commutative, distributive, the focus is not on identifying or naming the properties.

Sample Stems

Fill in the blank to make the equation true and explain how each of these represent equivalent expressions.

5 x ____ + 9 = 50 + 9

3 x 8 = ____ x 3

7 x 6 = (___ x 6) + (2 x 6)

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limited to factors of zero to ten.
Limit divisors to ten or less and dividends to one hundred or less.
Limit quotients to be whole numbers with no remainder.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 2

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.RA.C.7
RA C 7	**Relationships and Algebraic Thinking** **PRIORITY STANDARD** **Multiply and divide within 100** Multiply and divide with numbers and results within 100 using strategies such as the relationship between multiplication and division or properties of operations. Know all products of two one-digit numbers.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will demonstrate an understanding of multiplication and division, using strategies such as the inverse relationship between multiplication and division or properties of operations, or other mathematical practices such as modeling.

The student will know all products of two one-digit numbers.

Mathematical Fluency is more than a quick answer on a timed test. Students demonstrate Fluency when they do mathematics using an ***appropriate strategy*** in a reasonable amount of time, ***knowing multiple processes*** and can apply or adapt strategies to find a correct solution.

The student will use and explain multiple strategies to solve problems with or without context involving multiplying and dividing numbers where the results are within 100.

Sample Stems

How can I use what I know about multiplication to solve 63 divided by 7?

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limited to factors of zero to ten.
Limit quotients to be whole numbers with no remainder.
Limit divisors to ten or less and dividends to one hundred or less.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 2

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.RA.C.8
RA C 8	**Relationships and Algebraic Thinking** **Multiply and divide within 100** Demonstrate fluency with products within 100.	**PRIORITY STANDARD**

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will demonstrate fluency with products within 100. The student will know all products of two one-digit numbers.

Mathematical Fluency is more than a quick answer on some timed test. Students demonstrate Fluency when they do mathematics using an ***appropriate strategy*** in a reasonable amount of time, ***knowing multiple processes*** and can apply or adapt strategies to find a correct solution.

The student will use and explain multiple strategies to solve problems with or without context involving demonstrating fluency with products within 100.

Sample Stems

Terrance and Jed were asked to find the product of 9 and 6. Terrance decided to do 10 x 6 = 60 then subtract 6 to get the answer of 54. Jed solved by taking 5 x 6 = 30 and 4 x 6 = 24, then add 30 and 24 to get 54. They both got the same answer, but are the methods they used mathematically accurate? Explain.

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limited to factors of zero to ten.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 3

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.RA.D.9
RA D 9	**Relationships and Algebraic Thinking** **Use the four operations to solve word problems** Write and solve two-step problems involving variables using any of the four operations.	**PRIORITY STANDARD**

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	**Sample Stems**
The student will create (write) and solve two-step word problems using any of the four operations and model the situation with equation(s), using letter(s) or symbols for the unknown quantity. Note: There are multiple ways to correctly write an equation, including that the variable can be used on either side of the equal sign. When given equations using any of the four operations, the student will create (write) and solve two-step word problems. **Mathematical Fluency** is more than a quick answer on a timed test. Students demonstrate Fluency when they do mathematics using an ***appropriate strategy*** in a reasonable amount of time, ***knowing multiple processes*** and can apply or adapt strategies to find a correct solution. The student will use and explain multiple strategies to solve problems with or without context involving writing or solving two-step problems.	Write a story problem that would have you find the sum of 345 and 721, and then take away 237. What would the answer to your problem be? Additional Stems for 3rd Grade Found at End of Document.
State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits Limit addends, minuends, subtrahends, sums and differences to one thousand or less. Limit divisors to ten or less and dividends to one hundred or less. Limit factors to values from zero to ten. Limit quotients to be whole numbers with no remainder.	**Calculator Designation** **NO** – a calculator will not be available for items
DOK Ceiling: 3	
Item Format: Selected Response, Constructed Response, Technology Enhanced	

Grade 3 Mathematics

Mathematics		3.RA.D.10
RA D 10	**Relationships and Algebraic Thinking** **Use the four operations to solve word problems** Interpret the reasonableness of answers using mental computation and estimation strategies including rounding.	**PRIORITY STANDARD**

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will interpret the reasonableness of a solution using mental computation and estimation strategies, including rounding, in context of a problem situation.

Mathematical Fluency is more than a quick answer on some timed test. Students demonstrate Fluency when they do mathematics using an ***appropriate strategy*** in a reasonable amount of time, ***knowing multiple processes*** and can apply or adapt strategies to find a correct solution.

The student will use and explain multiple strategies to solve problems with or without context involving interpreting the reasonableness of answers using mental computation and estimation.

Sample Stems

A jar has 72 marbles in it. If you take out 25 marbles, how many marbles are left in the jar? Is it reasonable to expect the total number of marbles left to be more or less than 50?

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limit addends, minuends, subtrahends, sums, and differences to one thousand or less.
Limit divisors to ten or less and dividends to one hundred or less.
Limit factors to values from zero to ten.
Limit quotients to be whole numbers with no remainder.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 3

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.RA.E.11
RA E 11	**Relationships and Algebraic Thinking** **Identify and explain arithmetic patterns.** Identify arithmetic patterns and explain the patterns using properties of operations.	**PRIORITY STANDARD**

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will identify arithmetic patterns, such as in an input/output table or in a sequence of given numbers and explain the patterns using properties of operations (associative, commutative, distributive).

Note:
While students will be learning how to use properties of operations, i.e., associative, commutative, distributive, the focus is not on identifying or naming the properties.

Mathematical Fluency is more than a quick answer on a timed test. Students demonstrate Fluency when they do mathematics using an ***appropriate strategy*** in a reasonable amount of time, ***knowing multiple processes*** and can apply or adapt strategies to find a correct solution.

The student will use and explain multiple strategies to solve problems with or without context involving identifying and explaining arithmetic patterns.

Sample Stems

Write down all the numbers you get when you count by 9. Notice how the tens digit and the ones digit change each time. Explain why this happens.

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

No Limits.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 2

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.GM.A.1
GM **A** **1**	**Geometry and Measurement** **Reason with shapes and their attributes.** Understand that shapes in different categories may share attributes and that the shared attributes can define a larger category.	**PRIORITY STANDARD**

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

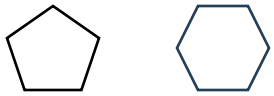
The student will understand that shapes in different categories, e.g., rhombuses, rectangles, and others may share attributes, e.g., side lengths, number of angles, number of sides, and that the shared attributes can define a larger category, e.g., quadrilaterals.

Mathematical Fluency is more than a quick answer on a timed test. Students demonstrate Fluency when they do mathematics using an ***appropriate strategy*** in a reasonable amount of time, ***knowing multiple processes*** and can apply or adapt strategies to find a correct solution.

The student will use and explain multiple strategies to solve problems with or without context involving categorizing shapes using attributes.

Sample Stems

What do the following shapes have in common? How are they different? Name the shapes.



Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limit to circles, triangles, quadrilaterals, pentagons, hexagons, and octagons.
Limit to two-dimensional figures.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 2

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.GM.A.2
GM A 2	**Geometry and Measurement** **PRIORITY STANDARD** **Reason with shapes and their attributes.** Distinguish rhombuses and rectangles as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to these subcategories.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	**Sample Stems**
The student will distinguish rhombuses and rectangles as examples of quadrilaterals, and draw examples of quadrilaterals, including those that do not belong to any of these subcategories. The student will recognize that a square is both a rectangle and a rhombus.	Draw a quadrilateral that is NOT a rhombus. Is the quadrilateral you drew a rectangle? What attribute did you use to determine if your quadrilateral was a rectangle? Additional Stems for 3rd Grade Found at End of Document.
State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits Limit to two-dimensional figures.	**Calculator Designation** **NO** – a calculator will not be available for items
DOK Ceiling: 2	
Item Format: Selected Response, Constructed Response, Technology Enhanced	

Grade 3 Mathematics

Mathematics		3.GM.A.3
GM A 3	**Geometry and Measurement** **Reason with shapes and their attributes.** Partition shapes into parts with equal areas, and express the area of each part as a unit fraction of the whole.	**PRIORITY STANDARD**

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

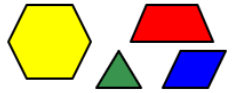
The student will partition shapes into parts with equal areas, including contextual examples. Express the area of each part as a unit fraction of the whole, e.g., partition a shape into 4 parts with equal area, and describe the area of each part as $\frac{1}{4}$ of the area of the shape.

Mathematical Fluency is more than a quick answer on some timed test. Students demonstrate Fluency when they do mathematics using an ***appropriate strategy*** in a reasonable amount of time, ***knowing multiple processes*** and can apply or adapt strategies to find a correct solution.

The student will use and explain multiple strategies to solve problems with or without context involving partitioning shapes into parts with equal areas and expressing the area of each part as a unit of the whole.

Sample Stems

Match the unit fraction with the shape that covers the same area of the hexagon.



$\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{6}$

Hexagon-yellow, trapezoid-red, triangle-green, and parallelogram-blue

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limit denominators 2, 3, 4, 6 or 8.
Limit to two-dimensional figures.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 2

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.GM.B.4
GM **B** **4**	**Geometry and Measurement** **Solve problems involving the measurement of time, liquid volumes and weights of objects.** Tell and write time to the nearest minute.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will tell, write, and show time to the nearest minute.

Note:
The student should be able to use either an analog or digital clock.

Sample Stems

Write the time shown on the clock.

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limit to the minute and hour only.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 2

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.GM.B.5
GM **B** **5**	**Geometry and Measurement** **Solve problems involving the measurement of time, liquid volumes and weights of objects.** Estimate time intervals in minutes.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will give an approximate elapsed time given a start time and an end time.

The student will estimate reasonable time intervals for a given activity, e.g. lunch, sleep, etc.

Note:
The student will give an estimated interval of the passage of time based on the context of the situation.

Classroom experiences should include estimating elapsed time for situations longer than one hour, e.g., watching a movie.

Sample Stems

Jaquasha said she started cleaning her room at 12:24 pm and finished at 1:03 pm. Shyanne said, "Oh, so it took you about 30 minutes to clean your room." Quinn said, "No, it took her more than 60 minutes." Who is correct? How could you convince someone this answer makes sense?

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

No Limits.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 3

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.GM.B.6
GM B 6	**Geometry and Measurement** **Solve problems involving the measurement of time, liquid volumes and weights of objects.** Solve problems involving addition and subtraction of minutes.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will solve problems with or without context involving addition and subtraction of minutes, e.g., using number lines (clock unrolled), clock faces, or other tools.

Note:
These problems may involve finding the start time, the end time, or the interval.

The start and end time may cross the hour.

Mathematical Fluency is more than a quick answer on some timed test. Students demonstrate Fluency when they do mathematics using an ***appropriate strategy*** in a reasonable amount of time, ***knowing multiple processes*** and can apply or adapt strategies to find a correct solution.

The student will use and explain multiple strategies to solve problems with or without context involving addition and subtraction of time.

Sample Stems

Itsi started her chores at 4:23 p.m. It took her 24 minutes to clean the dishes in the sink, 7 minutes to take out the trash, and 13 minutes to take out the dog. What time was she finished with her chores?

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

No Limits.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 3

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.GM.B.7
GM B 7	**Geometry and Measurement** **Solve problems involving the measurement of time, liquid volumes and weights of objects.** Measure or estimate length, liquid volume and weight of objects.	**PRIORITY STANDARD**

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will choose appropriate tools and/or units and use them to estimate and/or measure length, liquid volume, and weight of given objects using metric and/or customary units.

Note:
When measuring or estimating units of length use units to the nearest centimeter, meter, kilometer, inch, foot, yard or mile.
When measuring or estimating units of liquid volume use milliliters or liters, cups or gallons.
When measuring or estimating units of weight use ounces or pounds, grams or kilograms.

Mathematical Fluency is more than a quick answer on a timed test. Students demonstrate Fluency when they do mathematics using an ***appropriate strategy*** in a reasonable amount of time, ***knowing multiple processes*** and can apply or adapt strategies to find a correct solution.

The student will use and explain multiple strategies to solve problems with or without context involving measuring or estimating lengths, liquid volumes, and weights.

Sample Stems

Identify an item in your classroom that is closest to 11 inches in length.

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limit tools for length to rulers, yardsticks and meter sticks with marked units no smaller than the nearest half inch.
Limit tools for liquid volume to pictures of a marked container/graduated cylinder.
Limit tools for weight to scales.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 3

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.GM.B.8
GM **B** **8**	**Geometry and Measurement** **Solve problems involving the measurement of time, liquid volumes and weights of objects.** Use the four operations to solve problems involving lengths, liquid volumes or weights given in the same units.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.	**Sample Stems**
The student will use the four operations to solve problems involving lengths, liquid volumes, or weights within the same units. Note: When measuring or estimating units of length use units to the nearest centimeter, meter, kilometer, inch, foot, yard, or mile. When measuring or estimating units of liquid volume use milliliters or liters, cups or gallons. When measuring or estimating units of weight use ounces or pounds, grams or kilograms.	A box contains 20 apples that weigh a total of 10 pounds. If you take out 5 apples, how much will the remaining apples weigh in pounds? Additional Stems for 3rd Grade Found at End of Document.
State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits Limit addends, minuends, subtrahends, sums and differences to one thousand or less. Limit divisors to ten or less and dividends to one hundred or less. Limit factors to values from zero to ten. Limit quotients to be whole numbers with no remainder.	**Calculator Designation** **NO** – a calculator will not be available for items
DOK Ceiling: 3	
Item Format: Selected Response, Constructed Response, Technology Enhanced	

Grade 3 Mathematics

Mathematics		3.GM.C.9
GM **C** **9**	**Geometry and Measurement** **Understand concepts of area** Calculate area by using unit squares to cover a plane figure with no gaps or overlaps.	

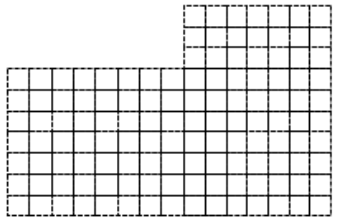
Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will find and justify the area by using unit squares to cover a plane figure with no gaps or overlaps.

Note:
The focus in grade 3 is to build the idea that the area of a figure describes covering the figure with no gaps or overlaps. Use of a formula is not a focus for this standard.

Sample Stems

Calculate the area of the figure below. Explain how you found the area, including how you may have used the unit squares covering the figure.



Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limited figures to rectangles (which includes squares) and irregular shaped figures composed of rectangles with grid lines or unit squares shown.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 2

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.GM.C.10
GM C 10	**Geometry and Measurement** **Understand concepts of area** Label area measurements with squared units.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will use square units to label area measurements, e.g., square centimeters, square centimeters, centimeters squared, inches squared.

Sample Stems

Build a playground: Design a playground using graph paper or a digital tool that allows you to work with unit squares, and then label the area of each section in square units.

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limit units of length to centimeters, meters, kilometers, inches, feet, yards, miles, or generic "units".

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 2

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.GM.C.11
GM **C** **11**	**Geometry and Measurement** **Understand concepts of area** Demonstrate that tiling a rectangle to find the area and multiplying the side lengths result in the same value.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will identify and/or justify that tiling a rectangle to find the area and multiplying the side lengths results in the same value.

Note:
The focus in grade 3 is to build the idea that the area of a figure describes tiling (covering the figure with no gaps or overlaps).

Tiling could be demonstrated using unit squares or other labeled rectangles.

While a 6 by 2 rectangle and a 3 by 4 rectangle share the same area, they are not representations of the same rectangle.

Students should realize that a 5 by 3 rectangle is the same as a 3 by 5.

Sample Stems

Phillip and Kenzie are working on finding the area of a rectangle that is 4 inches by 3 inches. Phillip grabs a bunch of 1 inch squares and starts filling in the rectangle. Kenzie says, "You don't have to do that. You can just multiply the 3 and 4." Phillip doesn't believe her and continues laying out the tiles. Once they both complete their work, they compare answers. Could they both get the same answer? Explain your reasoning.

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limit side lengths to whole numbers up to 10x10.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 3

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.GM.C.12
GM **C** **12**	**Geometry and Measurement** **Understand concepts of area** Multiply whole-number side lengths to solve problems involving the area of rectangles.	
Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations. The student will multiply side lengths to solve problems involving the area of rectangles in context. Note: Students should be working with figures without tiles or grid lines.		**Sample Stems** Stella is shopping for a blanket to fit her bed. She knows her bed has an area of 24 square feet. The blanket she found is 5 foot long and 5 foot wide. Will it cover her mattress? Justify your reasoning. Additional Stems for 3rd Grade Found at End of Document.
State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits Limit side lengths to whole numbers up to 10x10.		**Calculator Designation** **NO** – a calculator will not be available for items
DOK Ceiling: 3		
Item Format: Selected Response, Constructed Response, Technology Enhanced		

Grade 3 Mathematics

Mathematics		3.GM.C.13
GM C 13	**Geometry and Measurement** **Understand concepts of area** Find rectangular arrangements that can be formed for a given area.	**PRIORITY STANDARD**

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will find and/or create rectangular arrangements that can be formed for a given area, e.g., an area of 12 sq. cm can be shown as a 3 x 4 rectangle, a 2 x 6 rectangle, or a 1 x 12 rectangle.

Mathematical Fluency is more than a quick answer on a timed test. Students demonstrate Fluency when they do mathematics using an ***appropriate strategy*** in a reasonable amount of time, ***knowing multiple processes*** and can apply or adapt strategies to find a correct solution.

The student will use and explain multiple strategies to solve problems with or without context involving finding rectangular arrangements for a given area.

Sample Stems

You have 30 unit squares. How many different rectangles, using all 30 tiles, can you make?

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limit side lengths to whole numbers up to 10x10.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 2

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.GM.C.14
GM **C** **14**	**Geometry and Measurement** **Understand concepts of area** Decompose a rectangle into smaller rectangles to find the area of the original rectangle.	**PRIORITY STANDARD**

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will decompose a rectangle into two smaller rectangles, find the area of each smaller rectangle, then add the areas of the smaller rectangles to find the area of the original rectangle.

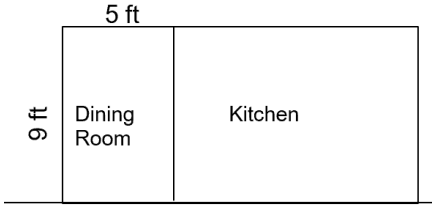
Note:
This is an application of the distributive property. For example, a 16 x 5 rectangle could be divided into a 10 x 5 rectangle and a 6 x 5 rectangle. The area of the original rectangle can be found by adding 50 + 30.

Mathematical Fluency is more than a quick answer on a timed test. Students demonstrate Fluency when they do mathematics using an ***appropriate strategy*** in a reasonable amount of time, ***knowing multiple processes*** and can apply or adapt strategies to find a correct solution.

The student will use and explain multiple strategies to solve problems with or without context involving decomposing a rectangle into smaller rectangles to determine area.

Sample Stems

A diagram of Sheldon's kitchen is shown below. The dining room and kitchen together are 15 feet long and 9 feet wide. The dining room is 5 feet long. Use the following diagram to find the area of the entire kitchen area.



Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limit side lengths to whole numbers 20 or less, and area 100 or less.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 3

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.GM.D.15
GM D 15	**Geometry and Measurement** **Understand concepts of perimeter** Solve problems involving perimeters of polygons.	**PRIORITY STANDARD**

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will solve problems involving perimeters of polygons including finding the perimeter when given side lengths and finding missing side lengths when given the perimeter.

Note:
Polygons used for this standard can be regular or irregular.

Mathematical Fluency is more than a quick answer on a timed test. Students demonstrate Fluency when they do mathematics using an ***appropriate strategy*** in a reasonable amount of time, ***knowing multiple processes*** and can apply or adapt strategies to find a correct solution.

The student will use and explain multiple strategies to solve problems with or without context involving solving perimeter problems of polygons.

Sample Stems

Camille walks around the perimeter of her house, which is 36 feet by 52 feet. What is the total distance she walked?

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limit side lengths to whole numbers.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 2

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.GM.D.16
GM D 16	**Geometry and Measurement** **PRIORITY STANDARD** **Understand concepts of perimeter** Understand that rectangles can have equal perimeters but different areas, or rectangles can have equal areas but different perimeters.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will demonstrate that rectangles can have equal perimeters but different areas and that rectangles can have equal areas but different perimeters.

Note:
Students should have the opportunity to consider rectangles with an area of 100 or less and side lengths more than 10.

Sample Stems

Moni and Xi are planting gardens that have an area of 36 square feet. Moni says she will need 24 feet of fence to go around her garden. Xi says he will need 26 feet of fence to go around his garden. What could explain the difference in the amount of feet they each need to go around the outside of their gardens?

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limit side lengths to whole numbers up to 10x10.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 3

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.DS.A.1
DS **A** **1**	**Data and Statistics** **Represent and analyze data** Create frequency tables, scaled picture graphs and bar graphs to represent a data set with several categories.	
Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations. The student will construct frequency tables, picture graphs and/or bar graphs to represent a given data set with several categories. Note: Picture graphs can include symbols used to represent quantities more than 1. Bar graphs should have the scale marked from zero to less than one hundred with intervals appropriate for the given context or situation.		**Sample Stems** Mr. Thomas looked at his weather app and recorded the following data for the dates of March 13 - March 27. Cloudy, partly cloudy, partly cloudy, rainy, windy, partly cloudy, partly cloudy, partly cloudy, partly cloudy, partly cloudy, rainy, rainy, partly cloudy, partly cloudy, rainy. Organize this data into a frequency table, pictograph, or bar graph. What can you say about the weather in Missouri over these 2 weeks in March. Additional Stems for 3rd Grade Found at End of Document.
State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits No Limits.		**Calculator Designation** **NO** – a calculator will not be available for items
DOK Ceiling: 2		
Item Format: Selected Response, Constructed Response, Technology Enhanced		

Grade 3 Mathematics

Mathematics		3.DS.A.2
DS **A** **2**	**Data and Statistics** **Represent and analyze data** Solve one- and two-step problems using information presented in bar and/or picture graphs.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

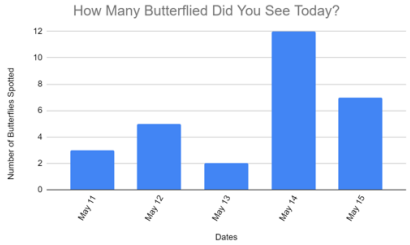
The student will solve one- and/or two-step problems using information presented in bar and/or picture graphs, e.g., reasoning "how many more" or "how many less".

Note:
Picture graphs can include symbols used to represent quantities more than 1.

Bar graphs should have the scale marked from zero to less than one hundred with intervals appropriate for the given context or situation.

Sample Stems

Look at the graph below. How many more butterflies were spotted on May 14th than on May 11th and May 13th put together?



Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limit addends, minuends, subtrahends, sums, and differences to whole numbers one hundred or less.
Limit divisors to less than ten and dividends no greater than one hundred.
Limit factors of zero to ten and final products within one hundred.
Limit multiplication or division to only basic facts up to 10x10.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 3

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.DS.A.3
DS **A** **3**	**Data and Statistics** **Represent and analyze data** Create a line plot to represent data.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

The student will create a line plot to represent data generated by multiple measures of the same object, given a scale marked in appropriate units (whole numbers and halves), or by measuring several related objects.

Note:
A line plot is a graph that displays data as points above a number line showing the frequency of each value in a data set, e.g., each student measured the length of their own pencil.

The intervals should be listed on a given number line.

Sample Stems

Create a line plot to display the following daily high temperatures given in degrees Fahrenheit.

43, 45, 46, 62, 59, 45, 41, 35, 47, 51, 53, 62, 59, 54, 50, 53

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limit the range of data to numbers between zero and twenty.

Calculator Designation

NO – a calculator will not be available for items

DOK Ceiling: 2

Item Format: Selected Response, Constructed Response, Technology Enhanced

Grade 3 Mathematics

Mathematics		3.DS.A.4
DS **A** **4**	**Data and Statistics** **Represent and analyze data** Use data shown in a line plot to answer questions.	

Expectation Unwrapped – the intent of this section is to describe the elements of the expectation, but are NOT additional standards or expectations.

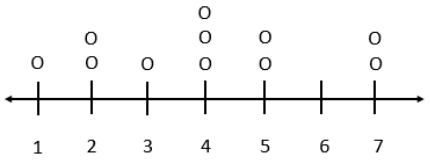
The student will use the data shown in a line plot to make observations and answer questions about the data.

Note:
In some materials line plots are also called dot plots. Given our standard uses line plot, instruction should match the expectation.

Observations do not include calculations, e.g., mode, range, as those are concepts for a later grade level, but could include verbal descriptions like values that occurred most frequently.

Sample Stems

Study the line plot below that shows the number of books read by each student in a class during a month. How many students read fewer than 5 books in a month?



Books Read in a Month

Additional Stems for 3rd Grade Found at End of Document.

State Assessment Content Limits/Boundaries - Classroom Work Should Extend Beyond These Limits

Limit data to whole numbers using addition or subtraction operations.
Limit the number of data points to 20 or less.

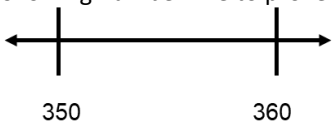
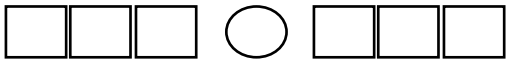
Calculator Designation

NO – a calculator will not be available for items

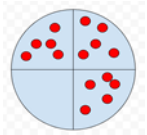
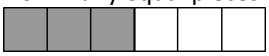
DOK Ceiling: 2

Item Format: Selected Response, Constructed Response, Technology Enhanced

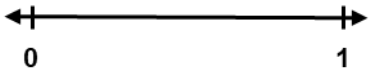
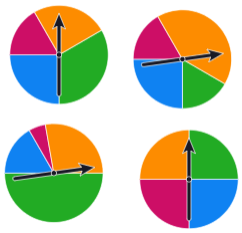
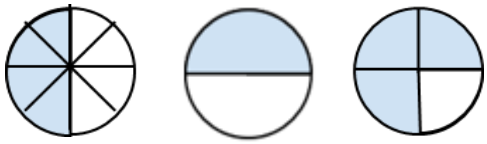
Grade 3 Mathematics

Code	Sample Stem	Explanation
3.NBT.A.1	A two-digit number is rounded to 50. What could it be? A three-digit number is rounded to 300, what could it be?	
	Todd says that 356 rounds to 360. Use the following number line to prove if Todd is correct.  	
3.NBT.A.2	Represent the number four thousand, two hundred sixty-one in three ways.	Students could write in other forms, draw it with place value cubes or on a place value chart, or break it up in ways other than expanded form if you want to encourage fluency with numbers. Could be made a multi-select if you list possible answers and have students select ones that are accurate.
	Change 500 + 30 + 7 to a number in base ten numbers.	
3.NBT.A.3	417 + _ _ _ = 931	
	Choose 3 numbers from this list that will give you a sum closest to 1,000. What is the sum? Why did you pick those numbers? Number list includes: 234, 617, 954, 89, 326, 742 and 173.	
	Students are to place numbers into the squares to get the best answer. Numbers should be entered immediately after calling them out without changing their position selected. The last number will decide the operation used, odd numbers subtraction and even numbers addition. 	Multiple variations possible for this problem. Numbers could be generated using dice or some other random generator. The "best answer" is also a conversation. It could be greatest, least, closest to zero (or some other number). Other options could include letting students pick which number determines operation sooner than the last number. Here are some possible numbers sets to use: 4,9,6,4,1,9,8 8,8,6,9,6,1,9 5,0,7,7,3,9,3

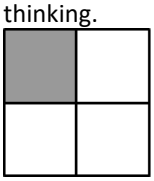
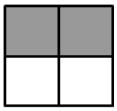
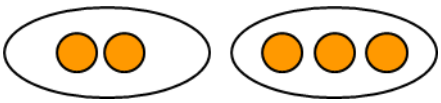
Grade 3 Mathematics

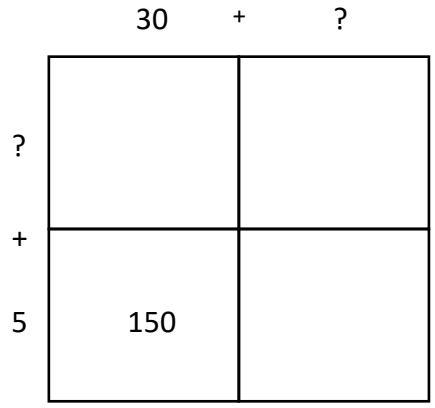
Code	Sample Stem	Explanation
3.NBT.A.4	What number makes the equation true? 3 x ☐ = 240	
	2 x 90 is an expression that has a product of 180. Find other expressions that also have a product of 180, list as many as you can.	
3.NF.A.1	Describe the characteristics of a unit fraction.	
	Write a fraction that is a unit fraction. What characteristics makes this a unit fraction?	
	Draw and label the fraction bar to show ⅓.	
3.NF.A.2a	Label each equal part of the model with a unit fraction.  What fraction of the model is shaded?	
	Elliott says that there are pepperonis on ¼ of the pizza because only 1 piece doesn't have pepperonis on it. Drake says that there are pepperonis on ¾ of the pizza because 3 pieces have pepperonis on them.  Who do you agree with? Explain your reasoning.	
3.NF.A.2b	How many equal pieces is the whole divided into? 	
	Franscico is wanting to draw a picture to show 2/3. He starts by drawing a rectangle. What should he do next?	

Grade 3 Mathematics

Code	Sample Stem	Explanation
3.NF.A.3a	Olive creates a number line that is partitioned into sixths.  Place a dot to show where one whole would be.	The number line is intentionally partitioned to show 1 2/6. Students often just mark the "end" of a number line they are given as 1 whole. We are looking to see if they understand that 1 whole = 6/6.
3.NF.A.3b	Use the following number line.  Partition the number line into four equal parts.	
	The problem on the board asks students to select the spinner that shows fourths.  Student A says they all work because they are all broken into four parts. Student B says the bottom right one because they are broken into four equal parts. Student C says the bottom right one because it is asking for fourths. The whole would be the entire circle, so fourths would be the whole broken into 4 equal parts. Explain which student(s) is(are) correct.	
3.NF.A.3c	Show where the fraction 3/4 is on a number line, be sure to include where 0 and 1 would be on that number line.	Students label the fraction to demonstrate an understanding of how many parts the whole is partitioned into and identifies the fraction represented by each point.
3.NF.A.4	Use the models below.  Explain which fractions are equivalent?	

Grade 3 Mathematics

Code	Sample Stem	Explanation
3.NF.A.5	Draw two models then partition and shade the models to show that 1/2 = 2/4.	Student represents equivalent fractions using visual models representing the same whole.
3.NF.A.6	Draw a model to show which of the following fractions is larger. Provide any explanation needed for your model. Fractions to compare: 3/6 and 3/8	Student identifies which fraction is greater than represents each fraction using a model, e.g., pie graph, shaded shape, or number line.
	Elliott has a pan of brownies. To get the most brownie, should he eat 4/6 or 4/8 of the pan? Justify your answer using words or drawings.	
3.NF.A.7	Jan eats 1/4 of a large cake. Pat eats 1/2 of a small cake. Jan says 1/4 is greater than 1/2 because the cake is larger. Is Jan correct? Explain your thinking.  	Student explains that fractions can only be compared when they refer to the same size whole.
	Chip and Heather each ate half a pizza, but Chip ate more. How is that possible?	
	Abby and Chris each ordered a pizza and ate several slices. Explain what information is needed in order to know who ate the most pizza.	Students will likely say they need to know how many slices each person ate. However, the size of each pizza ordered is also a requirement in order to compare the amounts eaten.
3.RA.A.1	The picture shows 2 groups of oranges. Does this model represent or show 2 x 3? Explain your thinking. 	
	Draw a picture of 3 x 4 = 12. How did you represent the 3? How did you represent the 4? Where is the 12 in your picture? Explain in words why 3 x 4 = 12 is true.	Draw a picture of 3 x 4 = 12. How did you represent the 3? How did you represent the 4? Where is the 12 in your picture? Explain in words why 3 x 4 = 12 is true.

	Marcus is thinking about how to solve the following problem: 9 x 7 = ? He believes he can think of 10 x 7 which equals 70, then take 7 away to get an answer of 63. Use words, pictures, math sentences or other math strategies to confirm Marcus's answer.	
	Choose numbers to complete the factors, then use the area model to show the partial products.  Be ready to discuss your answers.	
Code	Sample Stem	Explanation
3.RA.A.2	How many sets of apples would you have if you divided 6 apples into groups of 3? 	
	Draw a picture of 18 divided by 3 equals 6. How did you represent the 18? How did you represent the 3? Where is the 6 in your picture? Explain in words why 18 divided by 3 equals 6 is true.	
	Write a word problem that would be solved with 56 divided 7 equals 8. What would the 8 be in the context of your problem?	
3.RA.A.3	Jake buys 2 packs of pencils. Each pack has 5 pencils. Draw a picture to show how many pencils Jake has.	Student draws a picture to represent situation.

Grade 3 Mathematics

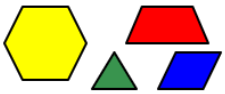
Code	Sample Stem	Explanation
3.RA.A.4	The Williamson family is planning a road trip that will cover a total of 280 miles. If they plan to drive for 8 hours each day, how far can they travel each day?	
	Taiwana is building a structure with Legos. She used eight 2 by 10 Legos for the first part. She wants to make 7 more parts just like the first to complete her structure. How many Legos will she need in all? Justify your answer.	
	Noe got the answer of 30 when he multiplied 2 numbers together. The sum of the numbers is greater than 12. What are the numbers?	
	Conrad needed 42 stamps so he could send Thank you notes to his relatives. If there are 6 stamps in a package, how many packages will he need?	
3.RA.A.5	Determine the unknown number in each of the following equations below. 8 x ? = 48 a ÷ 3 = 5 6 x 6 = b ? = 5 x 7 c = 24 ÷ 4 ? x 3 = 45	
	Fill in the blanks to make the equation true: 12 x ____ = 96 $\frac{72}{\square} = 8$ Describe different ways you might work to solve these problems.	
3.RA.B.6	Fill in the blank to make the equation true and explain how each of these represent equivalent expressions. 5 x ____ + 9 = 50 + 9 3 x 8 = ____ x 3 7 x 6 = (___ x 6) + (2 x 6)	While the names of the properties are not the focus for grade 3, students should be able to describe both what and why they are able to fluently manipulate equations and expressions.

	Fill in the blank to make the equation true and explain how each of these represent equivalent expressions. (8 x ___) + 7 = 80 + 7 (4 x 7) + 6 = (7 x __) + __ 9 x 4 = (___ x 4) + (4 x 4)	
	The associative property for multiplication tells us that the product of three or more numbers remains the same regardless of how the numbers are grouped. How would you place a set of parentheses on the right side of the equal sign to make solving this problem a little easier for you? Explain your choice. (7 x 8) x 5 = 7 x 8 X 5	
Code	Sample Stem	Explanation
3.RA.C.7	How can I use what I know about multiplication to solve 63 divided by 7?	
3.RA.C.8	Terrance and Jed were asked to find the product of 9 and 6. Terrance decided to do 10 x 6 = 60 then subtract 6 to get the answer of 54. Jed solved by taking 5 x 6 = 30 and 4 x 6 = 24, then add 30 and 24 to get 54. They both got the same answer, but are the methods they used mathematically accurate? Explain.	
3.RA.D.9	A bookstore sells books for $10 each and bookmarks for $3 each. If a customer buys 6 books and some bookmarks and spends a total of $65, how many bookmarks did they buy?	
	Sarah has some money saved up to buy a new bike. She needs to save $400 in total, but she already has $260. How much more money does Sarah need to save, and how many weeks will it take her to save it if she can save $35 per week?	Note: the numbers extend beyond the assessment limits, but students should be able to approach this problem from multiple strategies that fit within the limits. In addition, classroom experiences should stretch beyond assessment limits.
	Yanni has 4 blocks. Corin has 3 more than twice the number of blocks that Yanni has. How many blocks does Corin have? Draw a model to show how you figured it out.	
	Write a story problem that would have you find the sum of 345 and 721, and then take away 237. What would the answer to your problem be?	

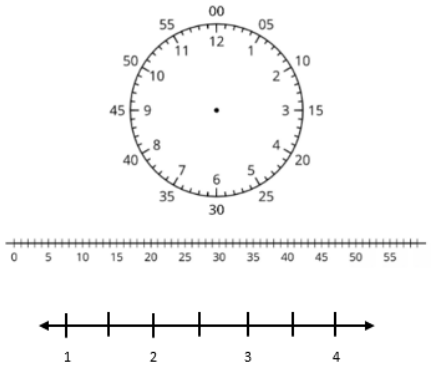
Grade 3 Mathematics

Code	Sample Stem	Explanation
3.RA.D.10	A candy bar costs $1.25. If you buy 3 candy bars. Is it reasonable to expect the total cost to be more or less than $5?	
	A jar has 72 marbles in it. If you take out 25 marbles, how many marbles are left in the jar? Is it reasonable to expect the total number of marbles left to be more or less than 50?	
	Cornelius solved this problem: 4,497 + 6,543. He got an answer of 11,040. Is his answer reasonable? Explain one strategy you used to determine the reasonableness of his answer.	Students should work on estimation strategies that build on different computational strategies. Solving the problem interferes with the development of good estimation skills.
3.RA.E.11	Explain why four groups of any number is always even. How can four times any number be decomposed into two equal addends?	
	Write down all the numbers you get when you count by 9. Notice how the tens digit and the ones digit change each time. Explain why this happens.	
	Joe draws 4 cards from a deck. In order, they are 3, 5, 4, 6. Joe notices a pattern developing. If the pattern continues, what would be the next number he would draw? Justify your answer.	
3.GM.A.1	What do the following shapes have in common? How are they different? Name each shape. 	
	What do the following shapes have in common? How are they different? Name the shapes. 	
3.GM.A.2	Draw a quadrilateral that is NOT a rhombus. Is the quadrilateral you drew a rectangle? What attribute did you use to determine if your quadrilateral was a rectangle?	

Grade 3 Mathematics

Code	Sample Stem	Explanation
3.GM.A.3	Match the unit fraction with the shape that covers the same area of the hexagon.  $\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{6}$ Hexagon-yellow, trapezoid-red, triangle-green, and parallelogram-blue	May want to consider using words versus the fraction.
3.GM.B.4	Write the time shown on the clock. 	
3.GM.B.5	François worked on his homework for about 10 minutes. Which of the following could have been the times he worked? 5:27 - 5:45; 6:34 - 7:04; 4:52 - 5: 03; 7:28 - 7:32. Justify your answer.	
	Jaquasha said she started cleaning her room at 12:24 pm and finished at 1:03 pm. Shyanne said, "Oh, so it took you about 30 minutes to clean your room." Quinn said, "No, it took her more than 60 minutes." Who is correct? How could you convince someone this answer makes sense.	

Grade 3 Mathematics

Code	Sample Stem	Explanation
3.GM.B.6	Tina is trying to solve some questions involving time. She realizes that if she "unrolled" the clock she could make a number line, which might help show her thinking about the solutions. Tina finds the resources shown below, one is a clock showing the hours and the minutes, one is a number line showing just the minutes and the last one is a number line showing hours including half hours. Tina wonders how much time she spends in school after lunch. Lunch ends at 12:30 and school is dismissed at 3:15. How long is Tina in school after lunch? Use the models below to support your thinking.  	
	James left home at 1:20 and rode his bike for 30 minutes. What time did he stop riding? It took Gerry 25 minutes to walk to school. If he arrived at 8:15, what time did he leave home?	
	Itsi started her chores at 4:23 p.m. It took her 24 minutes to clean the dishes in the sink, 7 minutes to take out the trash, and 13 minutes to take out the dog. What time was she finished with her chores?	
	Howard is having a birthday party at 2:00 p.m. He is planning on it taking 30 minutes to decorate for the party, 15 minutes to set up the games, and 10 minutes for him to get ready. What time should he start preparing for the party?	Have an analog clock available for use if needed.

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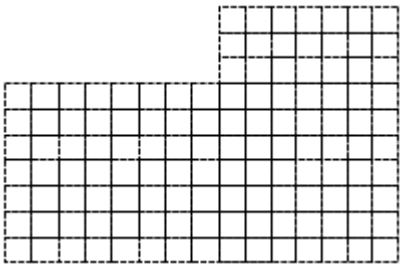
Code	Sample Stem	Explanation
3.GM.B.7	Identify an item in your classroom that is closest to 11 inches in length.	Other options would be to have students name something in the room that is about 3 feet long. Name something in the room that would hold about 2 cups of water. Name something in the room that is about 4 pounds. Certainly, after they have named an item, they should go measure it to see who is closest.
	Would you be able to carry something that weighed 2,000 grams. Justify your answer.	
	We have been working with many ways to measure objects and amounts, i.e., grams, liters, meters, gallons, pounds, and cups. If we were going to estimate the amount of what needed to fill a swimming pool, what unit should we use and why?	In addition, have students name something that would be measured by each unit not chosen.
3.GM.B.8	A box contains 20 apples that weigh a total of 10 pounds. If you take out 5 apples, how much will the remaining apples weigh in pounds?	
3.GM.C.9	Calculate the area of the figure below. Explain how you found the area, including how you may have used the unit squares covering the figure. 	
	Create a floor plan for a room: Design a floor plan for a room using unit squares, and then calculate the area of each section of the room by covering it with unit squares with no gaps or overlaps.	For example, you could design a bedroom that includes a closet and bathroom.
	Create a garden layout: Design a garden layout using unit squares, and then calculate the area of each section of the garden by covering it with unit squares with no gaps or overlaps.	For example, you could design a vegetable garden that includes a section for flowers and a pathway.
	Design a theme park: Design a map for a theme park using unit squares, and then calculate the area of each attraction or section of the park by covering it with unit squares with no gaps or overlaps.	For example, you could design a roller coaster, Ferris wheel, and food court.

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3.GM.C.10	Design a neighborhood: Design a neighborhood using graph paper or a digital tool that allows you to work with unit squares, and then label the area of each lot in square units.	For example, you could design a residential lot with a park and a commercial lot.
	Plan a garden: Design a garden layout using graph paper or a digital tool that allows you to work with unit squares, and then label the area of each section in square units.	For example, you could design a vegetable garden with a flower garden and pathway.
	Build a playground: Design a playground using graph paper or a digital tool that allows you to work with unit squares, and then label the area of each section in square units.	For example, you could design a swing set area with a sandbox and slide.
3.GM.C.11	Phillip and Kenzie are working on finding the area of a rectangle that is 4 inches by 3 inches. Phillip grabs a bunch of 1 inch squares and starts filling in the rectangle. Kenzie says, "You don't have to do that. You can just multiply the 3 and 4." Phillip doesn't believe her and continues laying out the tiles. Once they both complete their work, they compare answers. Could they both get the same answer? Explain your reasoning.	
3.GM.C.12	Stella is shopping for a blanket to fit her bed. She knows her bed has an area of 24 square feet. The blanket she found is 5 foot long and 5 foot wide. Will it cover her mattress? Justify your reasoning.	
3.GM.C.13	You have 30-unit squares. How many different rectangles using all 30 tiles can you make?	
	The school has purchased 36 square rubber tiles to use on the playground. If all the tiles must be used in the same area and have 1 full side touching another rubber tile, what are all the possible dimensions of tile arrangements?	

Grade 3 Mathematics

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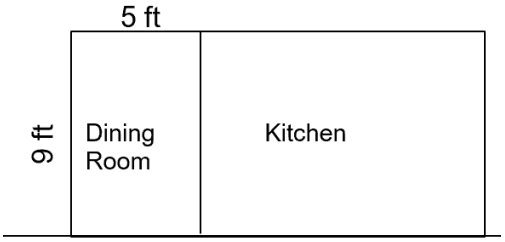
3.GM.C.14	A diagram of Sheldon's kitchen is shown below. The dining room and kitchen is 15 feet long and 9 feet wide. The dining room is 5 feet long. Use the following diagram to find the area of the entire kitchen area. 	
3.GM.D.15	If Camille walks around the perimeter of her house which is 36 feet by 52 feet. What is the total distance she would walk?	
3.GM.D.16	Given certain dimensions for a rectangle, give the dimensions of another rectangle that has the same area, but a different perimeter.	
	Moni and Xi are planting gardens that have an area of 36 square feet. Moni says she will need 24 feet of fence to go around her garden. Xi says he will need 26 feet of fence to go around his. What could explain the difference in the amount of feet they each need to go around the outside of their gardens.	
3.DS.A.1	Mr. Thomas looked at his weather app and recorded the following data for the dates of March 13 - March 27. Cloudy, partly cloudy, partly cloudy, rainy, windy, partly cloudy, partly cloudy, partly cloudy, partly cloudy, partly cloudy, rainy, rainy, partly cloudy, partly cloudy, rainy. Organize this data into a frequency table, pictograph, or bar graph. What can you say about the weather in Missouri over these 2 weeks in March.	

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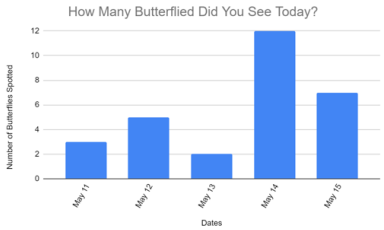
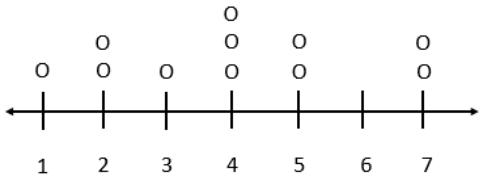
3.DS.A.2	Look at the graph below. How many more butterflies were spotted on May 14th than on May 11th and May 13th put together? 	
3.DS.A.3	Create a line plot to display the following daily high temperatures given in Fahrenheit degrees. 43, 45, 46, 62, 59, 45, 41, 45, 47, 51, 53, 62, 59, 54, 50, 53	
3.DS.A.4	Here are some possible questions to ask with a line plot: • What do you notice about the data we collected? • Why didn't we all get the same length when we measured our desks? What's the difference in length between the shortest and longest pencil (if data is reported to nearest whole number)? How many students have a pencil longer than 10 cm? • What pencil length is most common?	
	The line plot below shows the number of books read by each student in a class during a month. How many students read fewer than 5 books in a month? 	
	The line plot below shows the number of pets owned by each student in a class. How many students own exactly 2 pets?